TWO NEW SPECIES AND ONE NEW SUBSPECIES OF MEGATHYMIDAE FROM MEXICO AND TEXAS

by Don B. Stallings, J. R. Turner, Viola N. Stallings

The two new species described in this paper were selected for description at this time from a number of new species that we are in the process of studying. Each is a representative of a group of species that are closely related. Subsequent papers will describe the other species, using this paper as a reference point. We are constantly amazed at how subtle speciation can be among the Megathymidae. Populations that at first glance appear to be the same, are, after considerable study, often found to be very distinct. The two species herein described are prime examples.

MEGATHYMUS GAYLEAE Stallings, Turner, & Stallings,

NEW SPECIES

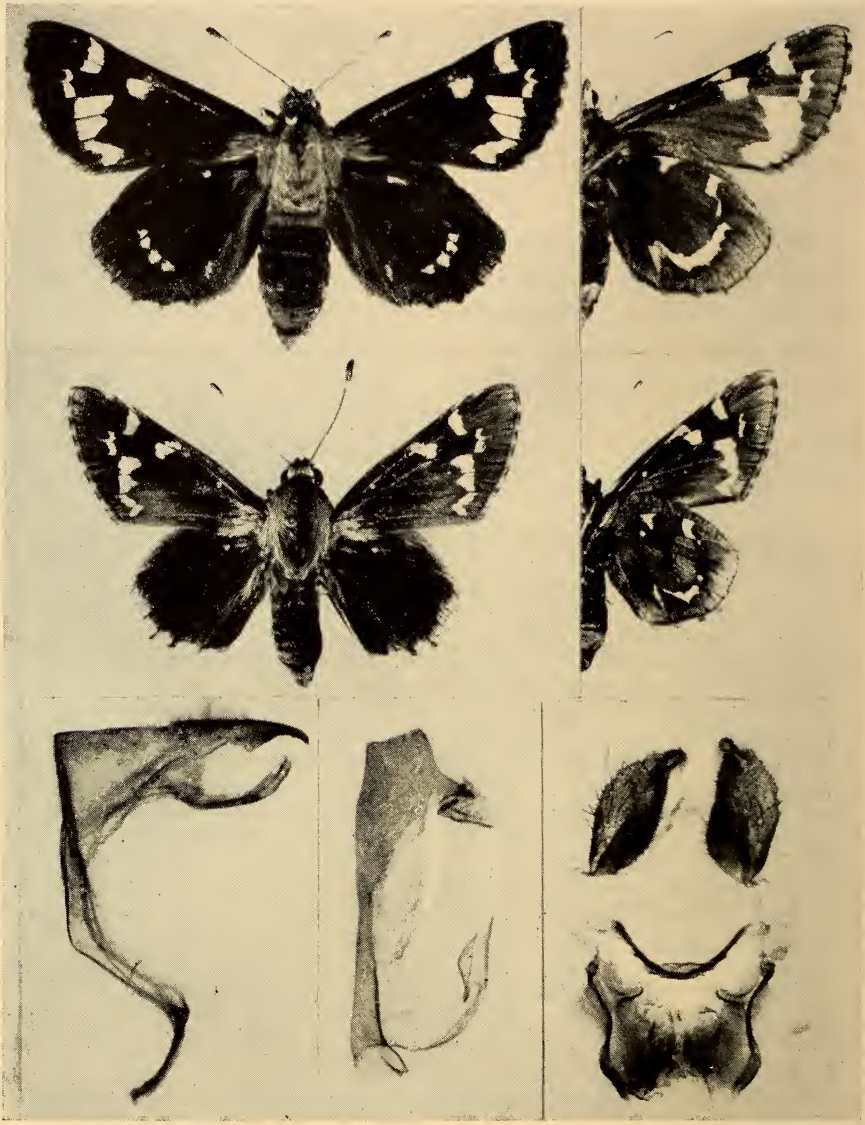
Female. Upper surface of primaries: black with very few olive-green and gray hairs intermingled at base; apex with a few scattered white scales; spot 1 (cell spot) roughly square, spots 2, 3, & 4 (subapical spots) rectangular and of even size and pretty much in alignment (outside line formed by these 3 spots if extended downward would pass through spot 6); spots 5 & 6 (submarginal spots) narrow, spot 5 cresent-shaped and 6 rectangular; spots 7, 8, & 9 (marginal band) with spot 7 roughly rectangular but with inward side not parallel to outward side, spot 8 smaller than 7 and rectangular and toothed inwardly, spot 9 smaller than 8 and appearing as a thick crescentic band, toothed inwardly; all 9 spots light chalky yellow in color; fringes checkered black and smoke.

Under surface of primaries: dull blackish with apex and some of outer margin very lightly overscaled with white; all the dorsal spots reappear but are much lighter, with spots 2, 3, 4, 5, & 6 white.

Upper surface of secondaries: black with very few olive-green and gray hairs intermingled at base; the light chalky yellow discal band composed of 4 small distinct spots, plus a faint spot near anal angle represented by a few scales; a few light chalky yellow scales along outer margin between veins M_1 and M_3; fringes very narrow, white in color, faintly checkered with black.

Under surface of secondaries: dull blackish, with area inside discal band overscaled with a few very short, light brown hairs and with area outside discal band more heavily overscaled with white; white discal band well defined and more narrow at ends than in center area; a triangular white spot in costal area close to base and a second white rectangular spot in costal area outward from first white spot; a third smaller white rectangular spot below second spot and slightly outside of it; center of wing has small area without brown hairs; costal area faintly overscaled with white hairs and scales; fringes very light brown.

Abdomen black above and brown-black below. Thorax olive-green above, brown-black below. Palpus white with some hairs capped in brown. Antenna with tip of club black, remainder of club and shaft white heavily overscaled with brown on upper side, but with more white below. Antenna of ♀ shorter than in ♂.



Megathymus gayleae. Top row: HOLOTYPE ♀, north of Saltillo, Mexico, 21 Sept. 1957. 2nd row: ALLOTYPE ♂, north of Saltillo, Mexico, 21 Sept. 1957. (Uppersides at left; undersides at right.)

Lower row: genitalia; left to right: ♂ uncus, ♂ valva, ♀ genital plate.

Length of forewing: 23.5 mm. to 32 mm., average 30 mm. Measurements of Holotype: forewing, apex to base 30mm., apex to outer angle 19 mm., outer angle to base 20 mm.; hindwing, base to end of vein Cu_1 20.5 mm.

Male. Upper surface of primaries: black with very few olive-green and gray hairs at base; tip of apex slightly overscaled with white; all 9 spots smaller than in ♀ and slightly paler in color, with spots 2 & 3 white; spots 7 & 8 toothed inwardly, with spot 7 the larger; spot 9 composed of two bars, forming a "V" with the base pointed inward; fringes checkered black and smoke.

Under surface of primaries: as in ♀, except the spots are smaller.

Upper surface of secondaries: black with very few olive-green and gray hairs at base; a band of light chalky yellow overscaling along outer margin; fringes very narrow, white, faintly checkered with black.

Under surface of secondaries: dull blackish with area inside discal band overscaled with a few very short, light brown hairs and area outside discal band more heavily overscaled with white; discal band composed of a black band with a white spot just below costal area and a long narrow "V" shaped white spot in anal area; a triangular white spot near base in costal area and a narrow black spot below this white spot; costal area overscaled with white; fringes on underside checkered light and dark brown.

Abdomen, palpus, and antenna as in ♀. Thorax differs from ♀ in being gray and black with very little olive-green above, otherwise like ♀.

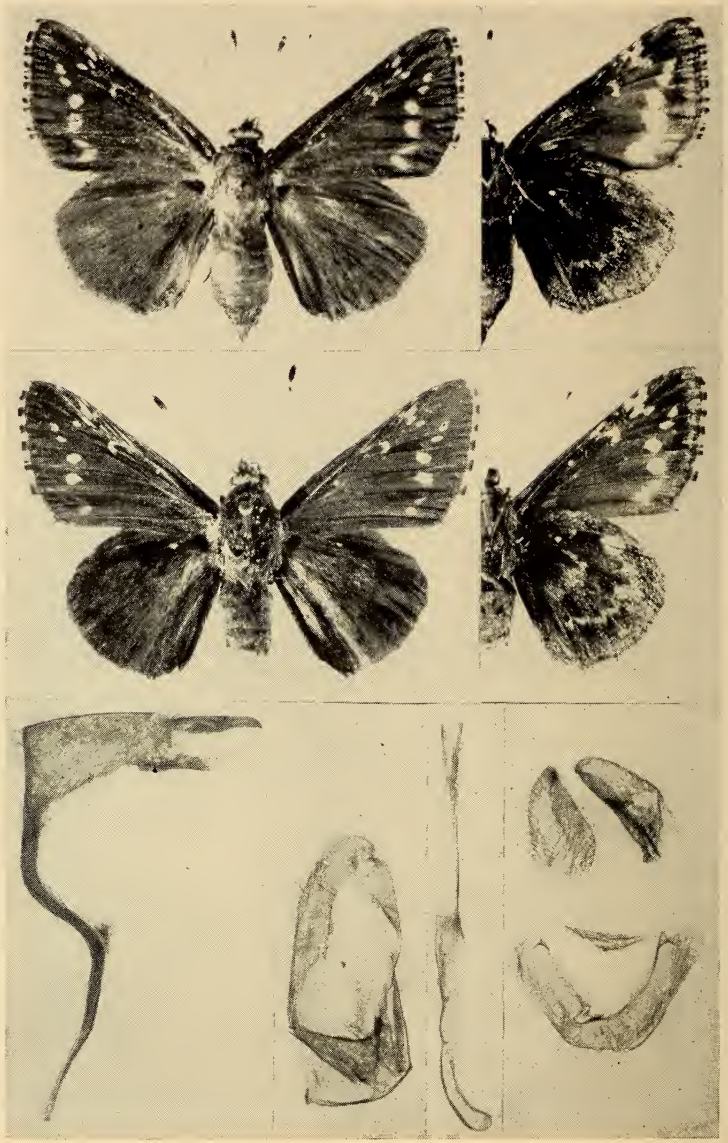
Length of forewing: 13 mm., to 27 mm., average 25 mm. Measurements of Allotype: forewing, apex to base 25 mm., apex to outer angle 16.5 mm., outer angle to base 16.5 mm.; hindwing, base to end of vein Cu_1 16 mm.

Described from 58 specimens (40 ♂♂ and 18 ♀♀) collected as larvae 23 kilometers morth of Saltillo, Coahuila, Mexico on Highway 57 (formerly Hwy. 75) at Km. marker 903 (old marker Km. 417) at an elevation of 4200 ft.; emerged in confinement from 16 Sept. to 7 Oct., 1957 and 1962. Collected by Dr. & Mrs. R. C. Turner, Dee, Jack, Viola and Don B. Stallings, and in 1962 H. A. Freeman.

HOLOTYPE: female, 21 Sept. 1957, and ALLOTYPE, male, 21 Sept. 1957, are in the collection of the authors. Paratypes will be placed in the collections of the U. S. National Museum, American Museum of Natural History, C. L. Remington, H. A. Freeman.

We had specimens of this species at the time we described *Megathymus beulahae* (*Lepid. news* 11: 113-137; 1958). At that time we considered it a subspecies of *beulahae*. It was not until we examined the genitalia that we realized this to be a separate species. The valva of the male genitalia is radically different from the valva of *beulahae*, resembling that of *yuccae* (Bdv. & Lec.). The female genitalia are also quite different, the constricted tips of the pads (papillae analis) being unique.

This species is easily distinguished from *Megathymus beulahae* by the reduction in size of the spots, particularly in the female, in which the discal band on the upper secondaries is limited to 4 spots. On the average *M. gayleae* hatches about 40 days later than *beulahae*.



Stallingsia jacki. Top row: HOLOTYPE ♀, Tuxtla Gutierrez, Mexico, 26 June 1958. 2nd row: ALLOTYPE ♂, Tuxtla Gutierrez, Mexico, 23 June 1958.
(Uppersides at left; undersides at right.)

Lower row: genitalia; left to right: ♂ uncus, ♂ valva, ♂ ædœagus, ♀ genital plate.

The foodplant is *Agave falcata* Engelm. and is closely related (if not the same) to the food plant of *beulahae*. Eggs are laid singly and are usually glued on the upper side of the leaf about one-third the way basad from the leaf tip. The larva in the final instar is ivory white and the caudal end is of the same color. We mention this last fact because we have another species of this group in which the caudal end of the larva is pinkish.

We found populations of this species, 25 to 50 miles west of Saltillo on Hwy. 40; 10 to 20 miles east of Saltillo on Hwy. 40; 73 miles north of Saltillo in the pass and on the north slope of the Sierra de la Gavia on Hwy. 57. The population west of Saltillo is subspecifically distinct as the spots are slightly larger than typical *M. gayleae* and the discal band of the female on the upper side of the secondaries often has more than 4 spots.

This species is named for GAYLE TURNER, daughter of the second named author and niece of the other two authors.

STALLINGSIA JACKI Stallings, Turner, & Stallings, NEW SPECIES

Female: upper surface of primaries: deep chocolate brown; all spots red brown, lighter than ground color; spot 1 (cell spot) a thin crescent with tips faced inward; spots 2, 3, & 4 (subapical spots) with spot 3 set inward from other two; spots 5 & 6 (submarginal spots) small, with spot 6 set inward from spot 5; spots 7 & 8 (with spot 9 making the discal band) round, with spot 7 directly above spot 8; spot 9 consisting of two diagonal bars just failing to join to form a "V" with base pointed inward; fringes well checkered brown-black and white.

Under surface of primaries: deep yellow brown without margin faintly overscaled with white; spot 2 white with some brown overscaling; all other spots light yellow brown with some brown overscaling, particularly in center of each spot, except spot 9 which lacks this overscaling; spot 5 is edged with some white scales; all spots larger on under side, particularly spot 9.

Upper surface of secondaries: deep choclate brown with pure white fringe.

Under surface of secondaries: brown-black overscaled with white; heavier along outer margin and in discal area, giving a slight banded effect.

Abdomen and thorax dark brown above and darker below. Palpus white with brown scales. Antenna with club brown-black and remainder brown-black narrowly ringed with light brown.

Measurements of Holotype: forwing, apex to base 26 mm., apex to outer angle 17.5 mm., outer angle to base 17.5 mm.; hindwing, base to end of vein Cu_1 18 mm.

Male: Upper surface of primaries: brown-black; all spots yellow with brownish tint and arranged as in ♀, except smaller; a few yellow hairs at base and extending outward towards outer angle; fringes well checkered brown-black and white.

Under surface of primaries: as above, with ground color a bit lighter, with spots larger, and with white overscaling on outer margin; spots 2 & 3 white.

Upper surface of secondaries: slightly darker than primaries with pure white fringe and with small pad of long black hairs in mid-costal area.

Under surface of secondaries: like ♀ but with more white overscaling, which increases the banded effect.

Abdomen, thorax, palpus and antenna as in ♀ but having whitish at base of antennal club.

Measurements of Allotype: forewing, apex to base 21 mm., apex to outer angle 17 mm., outer angle to base 17 mm., hindwing, base to end of vein Cu_1 17.5 mm.

Described from 4 specimens (1 ♂ and 3 ♀♀) reared from larvae collected near Tuxtla Gutierrez, Chiapas, Mexico at Km. 1081 at an elevation of 2500 ft.; emerged in confinement from 14 June to 2 July, 1958. The larvae were collected in August of 1957 by Dr. & Mrs. R. C. TURNER, DEE, JACK, VIOLA and DON B. STALLINGS.

HOLOTYPE: female, 26 June 1958, and ALLOTYPE, male, 23 June 1958, are in the collection of the authors.

The foodplant appeared to be a *Manfreda* much like the food plant of what we consider to be *Stallingsia smithi* (Druce) found at Guadalajara, Jalisco, Mexico. The colony of foodplants was found in a small clearing in the jungle and the larvae were discovered by JACK STALLINGS after the rest of us had given up finding anything in the plants.

This is the third described species of this genus and is found farther south than either of the other two, being close to Guatemala. It is distinguished from *S. smithi* by its smaller size and in the female by the deep chocolate brown ground color and in the male by the brown-black ground color. *S. smithi* does not have the ground color so dark, nor does it have the reddish cast as it's brown has a more yellowish tint. *S. smithi* has much more overscaling of yellow hairs on the upper surface of both sex. It is distinguished from *Stallingsia maculosus* (H. A. Freeman) by its larger size and though *S. maculosus* has a ground color with a reddish cast it is not as deep in color as *S. jacki*. Spots 7 and 8 of *S. maculosus* are elongated, while in this new species they are round.

The genitalia of this genus have several unique characters not shared with the other genera, particularly the relative length of the male ædœagus and the thick muscular tube (bursa?) attached to the vaginal plate, which had to be cut away before photographing in order to show the lower area of the plate. In *smithi* the terminal end of the ædœagus has a flange on each side, each flange terminating with two spines. *Maculosus* has the two flanges, each terminating in a single long slender spine. In this new species each flange terminates with a single spine which has a broad base, unlike *maculosus*. Later we expect to publish a paper devoted to the genitalia of the Megathymidae and will go into more detail as to the characters of the genitalia of this and related species.

This species is named for JACK STALLINGS, the son of the first and last named authors, whose perserverance was rewarded by the discovery of this species.

MEGATHYMUS YUCCAE REUBENI Stallings, Turner, & Stallings, NEW SUBSPECIES

Female: upper surface of primaries: bright black with yellow green hairs near base; outer margin from apex to outer angle heavily overscaled with white; spot 1 square; spots 2, 3, & 4 of equal length and in vertical allignment; spots 5 & 6 large and squarish; spot 7 shorter than 8; spot 9 about same length as 8, but toothed inwardly; spots 2, 3 & 4 white, spots 5 & 6 creamy white, spots 1, 7, 8, & 9 creamy yellow; fringes checkered light smoke and black.

Under surface of primaries: black with outer margins heavily overscaled with white; All spots of the upper side reappear, with spots 2, 3, 4, 5, & 6 white and spots 1, 7, 8, & 9 creamy white.

Upper surfaces of secondaries: bright black with yellow-green hairs near base; discal band well defined and brighter yellow than spots on primaries; with creamy-white border, 3 mm. wide; fringes white.

Under surface of secondaries: black with costal area and outer margin heavily overscaled with white; with two large triangular white spots in the costal area and a small white spot in center of wing; discal band is represented by heavy whitish overscales, in part outlined in black.

Abdomen bright black above, dark gray to black below; thorax dark gray above, lighter below; palpus almost pure white; antennal club above black and shaft white with faint black rings near base, below all white except tip of club.

Length of forewing 28 mm. to 35 mm., average 32 mm. Measurements of Holotype: forewing, apex to base 32 mm., apex to outer angle 20.5 mm., outer angle to base 22 mm.; hindwing, base to end of vein Cu_1 23 mm.

Male: Upper surface of primaries: flat black, similar to ♀ with spots smaller and lighter color; spots 1, 2, 3, 4, 5, & 6 white; spots 7, 8, & 9 toothed inwardly.

Under surfaces of primaries: similar to ♀ with spots white, except 7, 8, & 9 which are creamy white.

Upper surface of secondaries: similar to ♀ but without discal band and veins in outer black area edged with creamy white.

Under surface of secondaries: similar to ♀ but without discal band.

Abdomen, thorax, palpus, and antenna same as in ♀.

Length of forewing 24. mm. to 30 mm. average 27.5 mm. Measurements of Allotype: forewing, apex to base 27.5 mm., apex to outer angle 17.5 mm., outer angle to base 20 mm.; hindwing, base to end of vein Cu_1 18.5 mm.

Described from 36 specimens (12 ♂♂ and 24 ♀♀) reared from larvae and pupae, collected by Dr. & Mrs. R. C. Turner, Dee and Jack Stallings, and the authors, at an elevation of 5300 feet in the Hueco Mts. of Texas, emerging in confinement from 21 Jan. to 8 April, 1956, 1957 and 1962. The pupal cases are made a part of the type series.

HOLOTYPE, female, 25 March 1962, and ALLOTYPE, male, 25 March 1962, are in the collection of the authors. Paratypes are deposited in the collections of C. L. Remington, H. A. Freeman, U. S. National Museum, and the American Museum of Natural History.

Foodplant: *Yucca baccata* Torrey; sometimes *Yucca elata* Engelman.

This subspecies occurs throughout the Hueco Mts. We also have a single specimen of a very similar individual from the Big Bend area of Texas collected as a larva in *Yucca torreyi* Shafer near Shafter, Texas. Strangely, it emerged 8 Sept. 1957.

Megathymus yuccae reubeni. Top row: HOLOTYPE ♀, Hueco Mts., Texas, 25 Mar. 1962. Bottom row: ALLOTYPE ♂, Hueco Mts., Texas, 25 Mar. 1962. (Uppersides at left; undersides at right.)

We, along with H. A. FREEMAN, are aware that there is more than one species involved in the complex known as *Megathymus yuccae* (Bdv. & LeC.) and its many subspecies. In fact, preliminary work by Drs. REMINGTON and SAITOH with chromosome counts indicates that *M. yuccae* is confined to an area east of the Mississippi. This situation will soon be treated in a paper by the first named author and H. A. FREEMAN.

M. yuccae reubeni is distinguished from all other subspecies by its "blonde" appearance. Nearest to it are *M. yuccae coloradensis* Riley and *M. yuccae arizonae* Tinkham. It is distinguished from the first by its larger size and lighter color and from the second by its lighter color and heavy white overscaling in the outer margins.

This subspecies is named for Dr. REUBEN C. TURNER, father of the last two named authors, who was planning an expedition to collect further specimens of this subspecies at the time of his death in 1958.

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